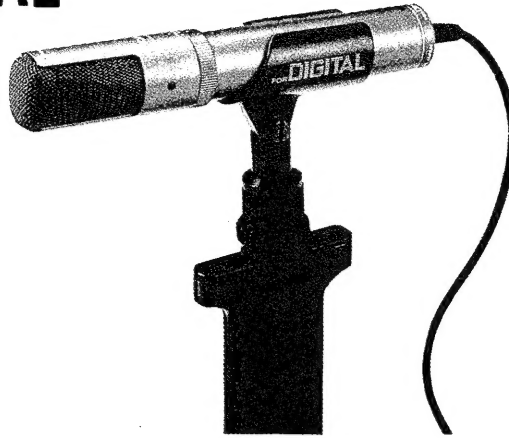


# ECM-959/959V

## SERVICE MANUAL



(ECM-959)

*E Model*  
*UK Model*  
*AEP Model*

ECM-959/959V

*US Model*  
*Canadian Model*

ECM-959

### SPECIFICATION

#### General

Type	One-point stereo (employing the Mid-Side system), electret condenser microphone (with back-electret condenser capsules)
Output plug	(ECM-959) ..... Stereo miniplug (ECM-959V) ..... Phone plug×2
Cord length	(ECM-959) ..... Approx. 2m(6feet 7inches) (ECM-959V) ..... Approx. 40cm(15¾inches)
Battery	R6 (size AA) battery
Dimensions	30×175mm(outside diameter×length) (1¼×7inches)
Weight	(ECM-959) ..... Approx. 206g(7.3 oz) incl. battery (ECM-959V) ..... Approx. 250g (8.8 oz) incl. battery
Supplied accessories	Wind screen (1) Microphone holder (with PF½ screw) (1) Sony battery SUM-3 (NS) (1) Case (1) (ECM-959) ..... Microphone stand/grip (1) Plug adaptors (unimatch plug) (1 set) Microphone stand screw adaptor SAD-35 (1), SDA-34 (1) (ECM-959V) ..... Microphone mounting adaptor (1)

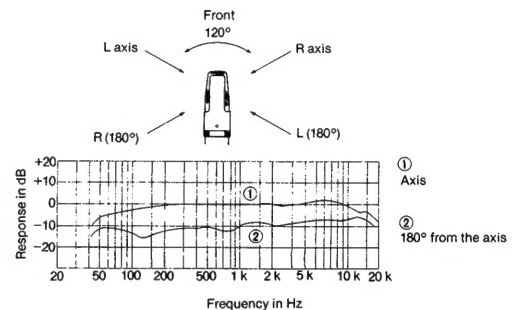
#### Performance

Frequency response	50 - 18,000 Hz
Directivity	Directive angle: 90° or 120°
Output impedance	550 Ω± 20% unbalanced
Output level	Open circuit voltage: -48±3 dB (0 dB = 1 V/Pa)
(at 1,000 Hz, directive angle 120°)	Effective output level: -51.4±3 dBm (0 dBm = 1mW/Pa) Difference between L and R output level: Less than 3 dB Recommended load impedance: More than 3 kilohms
Power requirements	Normal operating voltage: 1.5 V Minimum operating voltage: Approx. 1.1 V Battery life: Approx. 2,500 hours with Sony battery SUM-3 (NS)
Noise level	Signal-to-noise ratio: More than 69 dB (1,000 Hz, 1 Pa) Inherent noise: Less than 25 dB SPL (0 dB SPL = 2 × 10 <sup>-5</sup> Pa = 2 × 10 <sup>-4</sup> μbar) Wind noise *: Less than 45dB SPL, using wind screen Induction noise from external magnetic field **: Less than 10dB SPL (ECM-959)/Less than -4dB SPL (ECM-959V)
Maximum sound pressure level	More than 117 dB SPL (at 1,000 Hz, 1% distortion)
Dynamic range	More than 92 dB
Operating temperature range	0°C to 60°C (32°F to 140°F)
Storage temperature range	-20°C to 60°C (-4°F to 140°F)

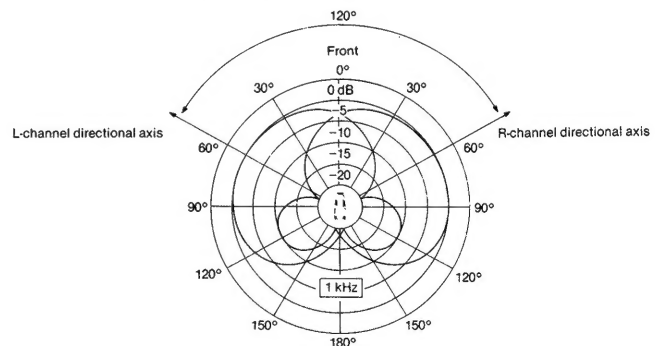
\* Wind noise is the value measured by applying a wind velocity of 2 m/sec. (6.6 ft./sec.) from all directions to the microphone. The mean value is taken and converted to the equivalent input sound level.

\*\* The external magnetic field induction noise is measured with the microphone placed in an alternating magnetic field of 50 Hz, 1 × 10<sup>-7</sup> tesla (1 milligauss). The maximum noise value is taken and converted to the equivalent input sound level.

#### Frequency Response



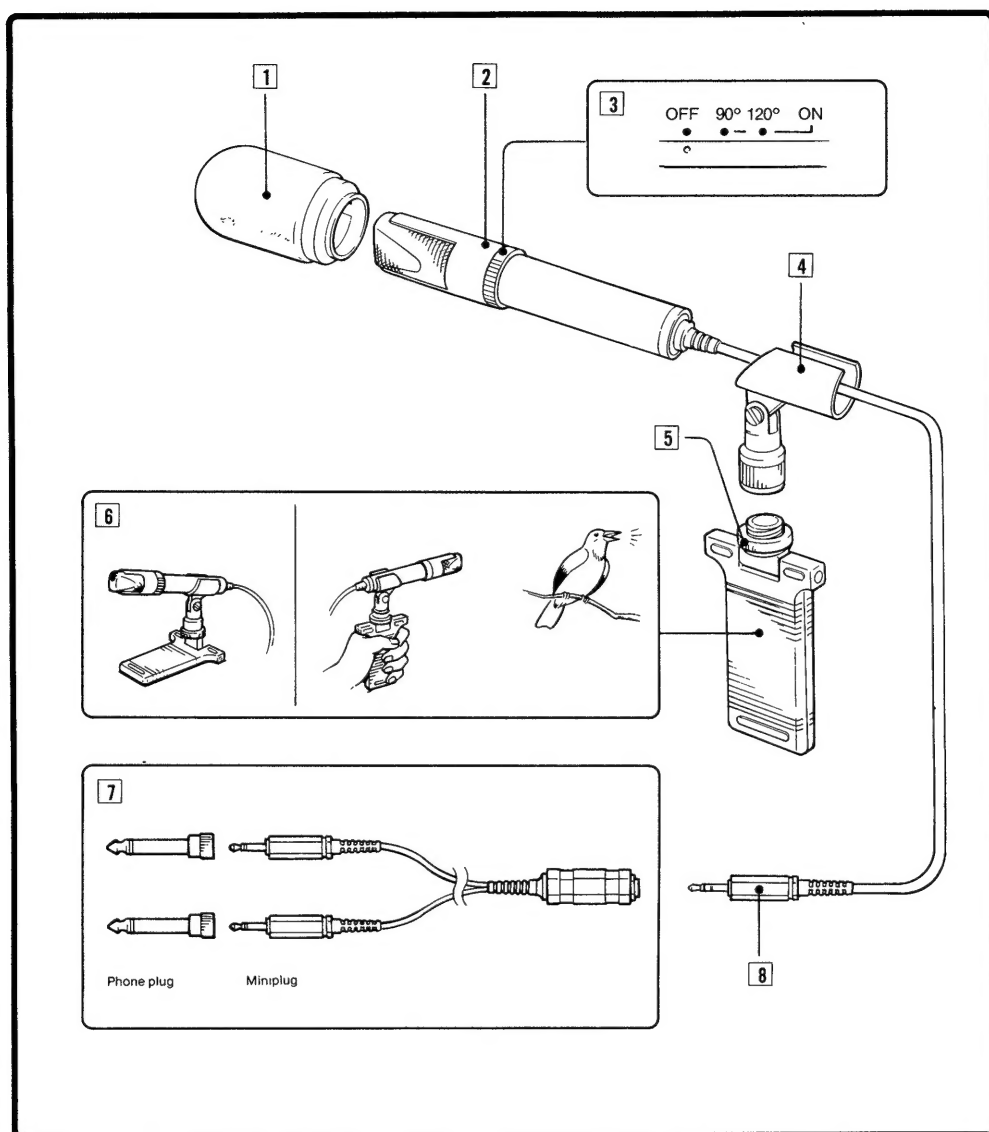
#### Directivity Characteristics



**ELECTRET CONDENSER  
STEREO MICROPHONE  
SONY®**

## CONNECTION AND PARTS IDENTIFICATION

ECM-959



### 1 Wind screen

Reduces wind or breath noises.

### 2 Battery check indicator

When the power/directive angle switch is moved from OFF to 90°, this indicator will light momentarily, if the battery is in good condition.

### 3 Power/directive angle switch

OFF: To turn off the power

90°: To pick up the source more clearly than the sound around the source (e.g. to pick up a strings quartet or jazz trio, or bird and insect noises)

120°: To pick up a sound well distributed to the left and right (e.g. to pick up an orchestra, chorus, moving steam locomotive, motor race)

### 4 Microphone holder

Attach to the supplied microphone stand/grip or to the optional microphone stand.

### 5 Lock screw

Adjust the angle of the microphone and tighten this screw.

### 6 Microphone stand/grip

Use to stand the microphone on a desk, or use as a grip of the hand microphone.

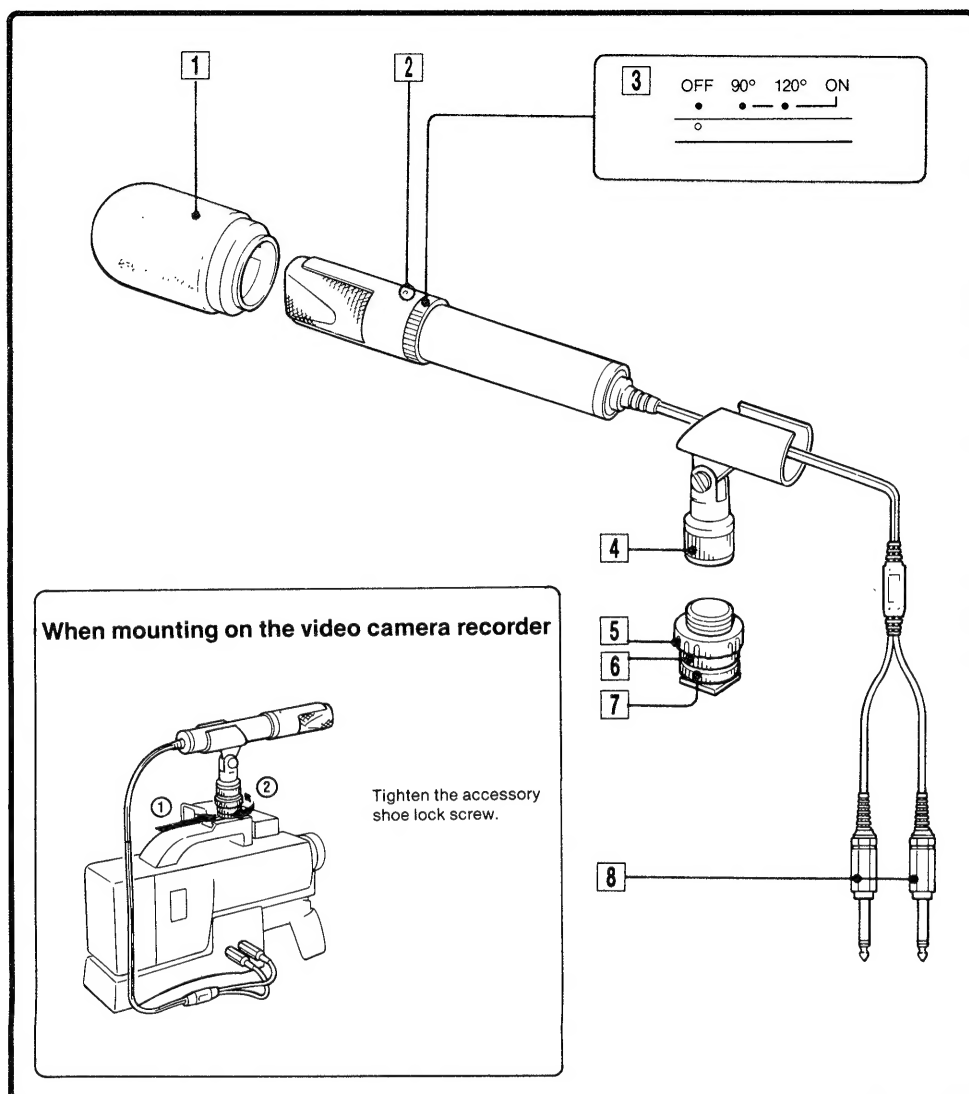
### 7 Plug adaptors

Use to connect the microphone to R (right) and L (left) microphone jacks of stereo equipment. Connect the red plug to R jack, and the white plug to L jack. When the microphone jacks are minijacks, pull to remove the phone plugs.

### 8 Stereo miniplug

Connect to the microphone jack of a stereo cassette-corder, etc.

## ECM-959V

**1 Wind screen**

Reduces wind or breath noises.

**2 Battery check indicator****3 Power/directive angle switch**

OFF: To turn off the power

90°: To pick up the source more clearly than the sound around the source (e.g. to pick up a strings quartet or jazz trio, or bird and insect noises)

120°: To pick up a sound well distributed to the left and right (e.g. to pick up an orchestra, chorus, moving steam locomotive, motor race)

**4 Microphone holder**

Attach to the supplied microphone mounting adaptor.

**5 Microphone holder lock screw**

Adjust the angle of the microphone and tighten this screw.

**6 Microphone mounting adaptor**

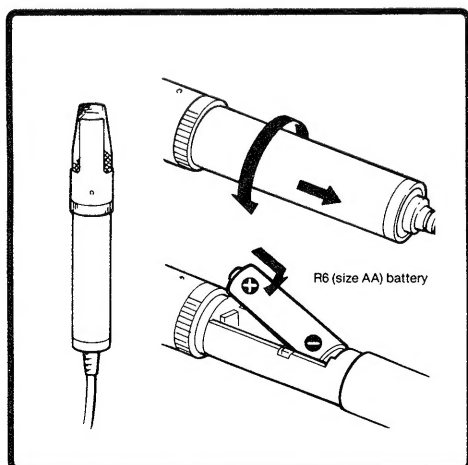
Use to mount the microphone on the accessory shoe of a video camera recorder.

**7 Accessory shoe lock screw****8 Phone plugs**

Connect to the microphone jacks of a video camera recorder, etc.

Connect the red plug to R jack, and the white plug to L jack.

## BATTERY INSTALLATION

**When to replace the battery**

When the power/directive angle switch is moved from OFF to 90°, the battery check indicator will light momentarily. When the battery becomes weak, the indicator will light dimly or will not light at all. In this case, replace the battery with new one. For battery life, see Specifications.

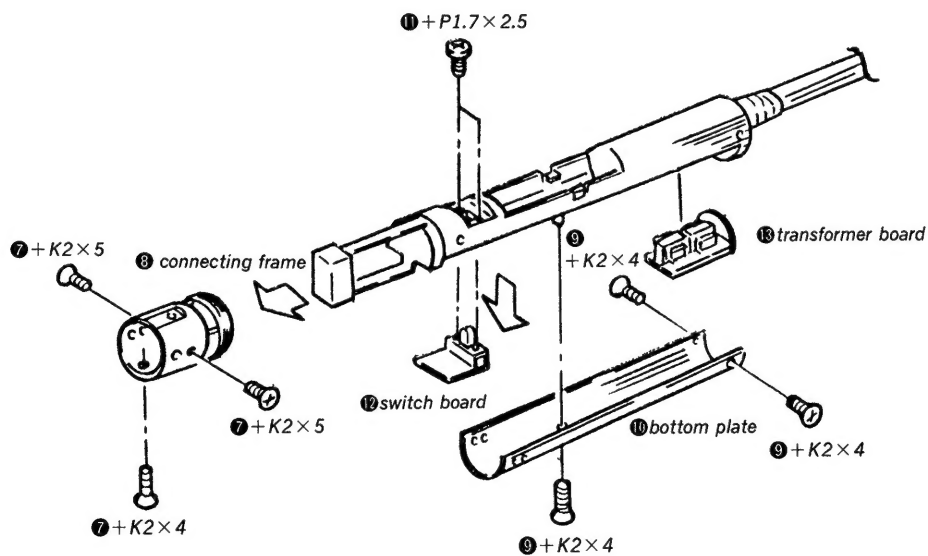
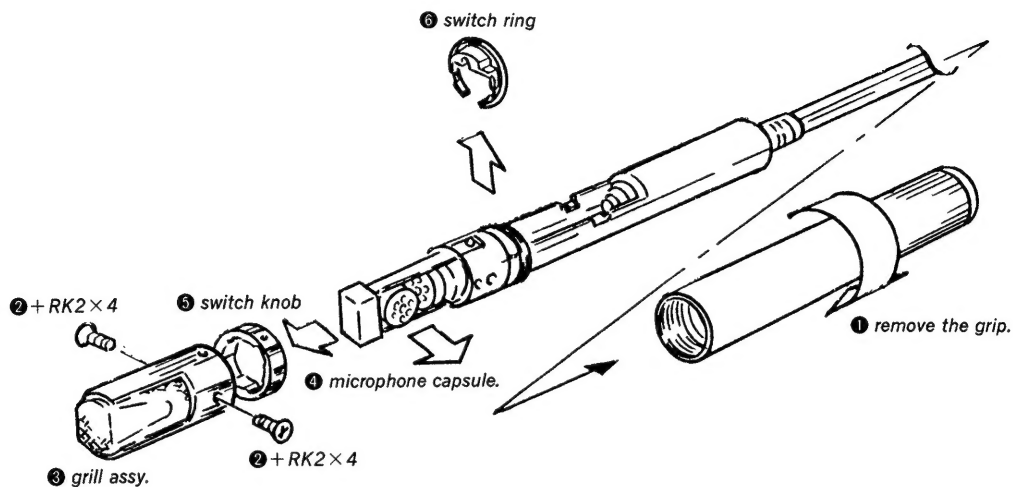
**Notes on battery**

- Install the battery with correct polarity.
- If the microphone is not to be used for a long time, remove the battery to avoid unit damage caused by battery leakage and corrosion.

**DISASSEMBLY**

**Note:** Follow the disassembly procedure in the numerical order given.

- (1) grill Assy : ①-③  
 (2) microphone capsule : ①-④  
 (3) switch board : ①-③, ⑤-⑫  
 (4) transformer board : ①-③, ⑤-⑩, ⑬

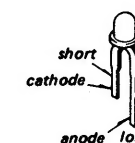


## MOUNTING DIAGRAM

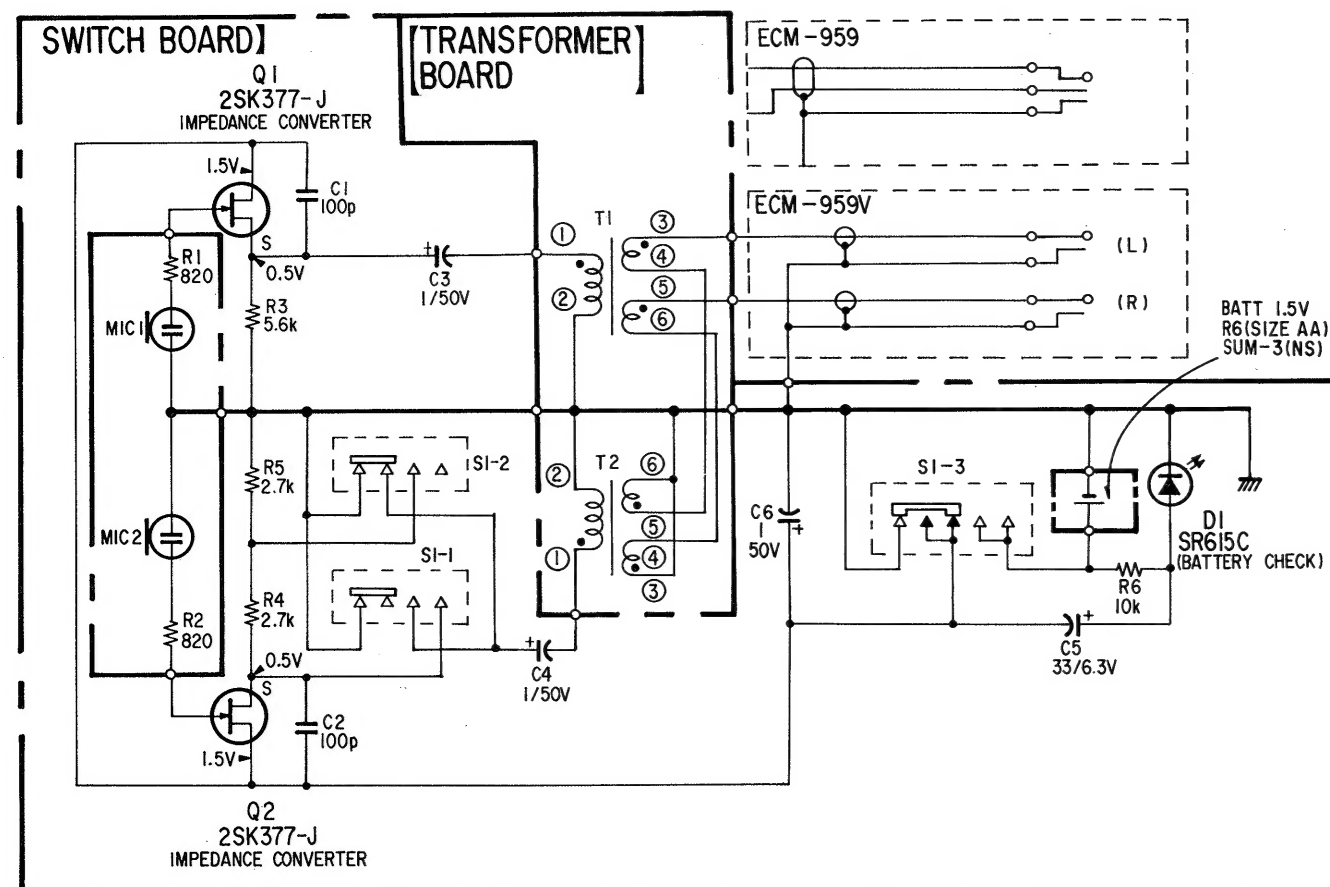
## SEMICONDUCTOR LEAD LAYOUT

2SK377-J

SR615C



## SCHEMATIC DIAGRAM



S1  
OFF → 90° → 120°

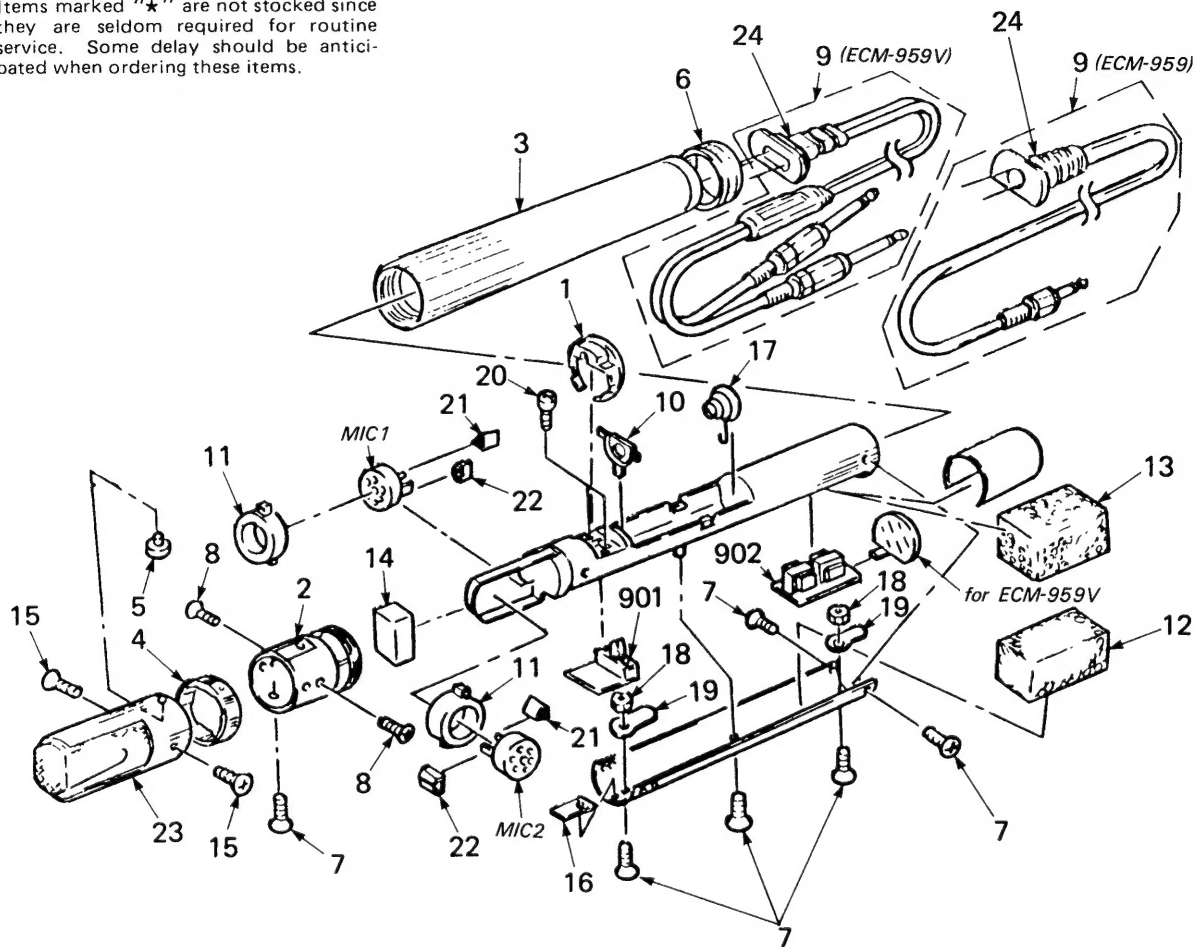
## Note:

- All capacitors are in  $\mu\text{F}$  unless otherwise noted.  $\text{pF}$ :  $\mu\text{F}$  50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in  $\Omega$  and  $\frac{1}{4}\text{W}$  or less unless otherwise specified.

## EXPLODED VIEW AND PARTS LIST

## NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.



No.	Part No.	Description
1	2-513-914-00	RING, SWITCH
2	* 2-529-951-02	FRAME (RELAY)
3	2-529-952-11	(ECM-959)...GRIP
	2-529-952-21	(ECM-959V)...GRIP
4	2-529-954-11	(ECM-959)...KNOB (SWITCH)
	2-529-954-01	(ECM-959V)...KNOB (SWITCH)
5	2-529-958-01	COVER, LED
6	2-529-979-01	(ECM-959)...RING, MODEL NAME
	2-529-989-01	(ECM-959V)...RING, MODEL NAME
7	7-627-452-28	SCREW, PRECISION +K 2X4, TYPE 1
8	7-627-452-38	SCREW, PRECISION +K 2X5, TYPE 1
9	1-558-631-21	(ECM-959)...CORD, MIC (DIA. 3.9)
	1-559-478-21	(ECM-959V)...CORD, MIC (FLAT TYPE)
10	2-520-113-00	BOARD, TERMINAL, POSITIVE
11	2-529-957-01	HOLDER, CAPSULE
12	2-529-963-01	CUSHION

No.	Part No.	Description
13	2-529-964-01	CUSHION
14	2-529-965-01	CUSHION
15	7-627-651-08	SCREW, PRECISION +RK 2X4, TYPE 1
16	* 2-539-605-01	PLATE, GROUND
17	3-325-414-01	SPRING
18	7-622-205-05	NUT M2 TYPE 2
19	7-623-505-01	LUG, 2
20	7-627-552-08	SCREW, PRECISION +P 1.7X2.5, TYPE 1
21	2-523-713-01	TERMINAL
22	* 2-532-219-01	TERMINAL, GROUND
23	X-2529-904-1	(ECM-959)...GRILLE ASSY
	X-2529-945-1	(ECM-959V)...GRILLE ASSY
24	2-529-980-01	(ECM-959)...BUSHING
	2-529-956-01	(ECM-959V)...BUSHING
901	* 1-623-793-11	PC BOARD, SWITCH
902	* 1-623-794-11	PC BOARD, TRANSFORMER
MIC1	8-814-177-01	MICROPHONE CU17-02-A
MIC2	8-814-178-01	MICROPHONE CU17-03-A

## ELECTRICAL PARTS LIST

## NOTE:

- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- CAPACITORS:  
MF:  $\mu$ F, PF:  $\mu$  $\mu$ F.

- RESISTORS  
All resistors are in ohms.  
F: nonflammable

ELECTRICAL PARTS

<u>Ref.No</u>	<u>Part No.</u>	<u>Description</u>
901	*1-623-793-11	PC BOARD, SWITCH
902	*1-623-794-11	PC BOARD, TRANSFORMER
C1	1-102-106-00	CERAMIC 100PF 10% 50V
C2	1-102-106-00	CERAMIC 100PF 10% 50V
C3	1-124-255-00	ELECT 1MF 20% 50V
C4	1-124-255-00	ELECT 1MF 20% 50V
C5	1-124-229-00	ELECT 33MF 20% 6.3V
C6	1-124-255-00	ELECT 1MF 20% 50V
D1	8-719-123-70	SR615C
MIC1	8-814-177-01	MICROPHONE CU17-02-A
MIC2	8-814-178-01	MICROPHONE CU17-03-A
Q1	8-729-824-18	2SK377-J3
Q2	8-729-824-18	2SK377-J3
R1	1-249-416-11	CARBON 820 1/4W 5%
R2	1-249-416-11	CARBON 820 1/4W 5%
R3	1-249-426-11	CARBON 5.6K 1/4W 5%
R4	1-249-422-11	CARBON 2.7K 1/4W 5%
R5	1-249-422-11	CARBON 2.7K 1/4W 5%
R6	1-249-429-11	CARBON 10K 1/4W 5%
S1	1-553-414-00	SWITCH, SLIDE
T1	1-427-508-00	TRANSFORMER, OUTPUT (MIC)
T2	1-427-508-00	TRANSFORMER, OUTPUT (MIC)

ACCESSORY & PACKING MATERIAL

<u>Part No.</u>	<u>Description</u>
X-2529-902-1	HOLDER ASSY, MICROPHONE
X-2529-903-1	SCREEN ASSY, WINDOW
X-2529-946-1	(ECM-959V)...ADAPTOR ASSY
X-2529-947-1	(ECM-959)...GRIP ASSY, MICROPHONE STAND
1-558-630-11	(ECM-959)...ADAPTOR, PLUG
*2-529-995-01	(ECM-959V)...INDIVIDUAL CARTON
*2-529-996-01	(ECM-959V)...CASE, ORNAMENTAL
*2-539-901-01	(ECM-959)...INDIVIDUAL CARTON
*2-539-902-01	(ECM-959)...CASE, ORNAMENTAL
2-599-379-11	(ECM-959)...MANUAL, INSTRUCTION
3-786-014-21	(ECM-959V)...MANUAL, INSTRUCTION
2-100-951-04	(ECM-959)...ADAPTER, SCREW, STAND(SAD-34)
2-100-952-00	(ECM-959)...ADAPTER, SCREW, STAND(SAD-35)